JAMES W. SEAVEY HOP DRIERS
Six-tenths of a mile from the junction of
Highway 99 West and Alexander Avenue.
Corvallis
Benton County
Oregon

HAER No. OR-65

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
Department of the Interior
P. O. Box 37127
Washington, D.C. 20013-7127

HISTORIC AMERICAN ENGINEERING RECORD

JAMES W. SEAVEY HOP DRIERS

HAER No. OR-65

Location:	This hop processing complex is located .6 miles from the junction of Hwy. 99 West and Alexander Avenue, Corvallis, Benton County, Oregon.
Date of Construction:	1911-12.
Builder:	Unknown
Present Owner:	Mrs. E. J. Kendall 1130 SW Stopp Place Corvallis, Oregon 97333
Present Use:	Vacant.
Significance:	The James W. Seavey Hop Driers are the only known remaining intact examples of large-scale hop drying complexes in the Willamette Valley. Containing its paired kilns, this complex in Corvallis is representative of the extensive hop operations that were common in the region during the late-nineteenth and early twentieth century. Also of note is the association of the complex with James Seavey who was an important figure in Oregon's early-twentieth century hop industry.
Historian:	Lynda Sekora, 1991
Project Information:	The documentation of the James W. Seavey Hop Driers was undertaken at the request of Lee H. Nelson, formerly of the National Park Service. He recognized the historic value of the hop-processing complex, which was in a deteriorated condition and was slated for demolition. The hop-processing complex was photographed by HAER photographer Jet Lowe in the summer of 1987. The written documentation was completed in 1991 by: Lynda Sekora, Historic Preservation Consultant, 2640 E. Wilshire Dr., Eugene, OR, 97405. A great deal of assistance was given by Lee Nelson.

Physical Setting

The Seavey hop-processing complex is located near the Willamette River, adjacent to a dry channel of the river. The land along this dry streambed once supported hop fields that were cultivated and harvested for processing in the Seavey hop driers. Long abandoned for growing hops, this bottomland is now heavily overgrown. The hop-processing complex stands above the river bottomland and is approached from the west by a narrow gravel road which extends south to the complex, parallel to the streambed. Also oriented on a north-south axis, the buildings containing the hop driers are situated along the road and associated buildings stand to the east and west.

A few hundred yards due south of the driers is a horse barn built in the 1890s by Chinese laborers. Across the road from this barn is a wood-frame farmhouse erected in 1912. An orchard and garden are located north of the farmhouse. Farther south is the site of a company store and dancehall built by Seavey; beyond is the former campground that was used by the hop pickers during harvest season. Although most of Seavey's hop pickers lived in tents, several small cabins once stood here that also housed workers.[1] Another large outbuilding reportedly stood immediately north of the hop-processing complex; it contained a vat used for soaking the furnace wood.[2] West of the complex was a two-story storage shed.[3]

A number of other residential buildings, constructed in more recent years, are located near the complex. These houses are part of a larger neighborhood that was developed on former agricultural land. Only the bottomland to the east is still farmed.

The location of the Seavey hop-processing complex is typical of other such complexes that once dotted the Willamette Valley. Most of the Valley's hops were grown in rich alluvial soils bordering major river systems; this yielded larger and greener hop plants. To a lesser extent hops were raised on hilly slopes

---

[1] E. J. Kendall, interview with author, 6 September 1989, Corvallis, Oregon.

[2] Kendall Manthe, interview with author, 8 December 1989, Corvallis, Oregon.

[3] E. J. Kendall, 1989.

above these streams and rivers. The hop driers and associated buildings were commonly constructed on higher ground adjacent to the hop fields.[4]

Physical Description

There are eight hop driers arranged in two banks each containing four driers. Connecting these two banks of hop driers is a central "fuel bay" (Figure 1). The two story fuel bay is enclosed and roofed, except on the ends at ground level. There is a space between each drier that is approximately ten feet wide. The exterior dimensions of a single drier measures about 32' square. The driers are also two stories in height and have hipped roofs with wooden shingles and centrally located cupolas. Originally the roofs of the cupolas were raised to create a natural draft during the drying process, but surplus airplane propellers were later installed to facilitate the upward movement of heated air (Manthe 1985). All but one of the oak fans have either been stolen or sold by the current owner (Kendall 1989).

---

[4] Shirley Seavey Deardorf, interview with author, 6 September 1989, Corvallis, Oregon; Frank Holmes Jr., "History, Methods and Cost of Production and Financing of Pacific Coast Hops," MA Thesis, University of Oregon, 1947, 26-27; G. L. Sulerud, "An Economic Study of the Hop Industry in Oregon," in Agricultural Experiment College: Bulletin 288 (Corvallis: Oregon State Agricultural College, 1931), 31.

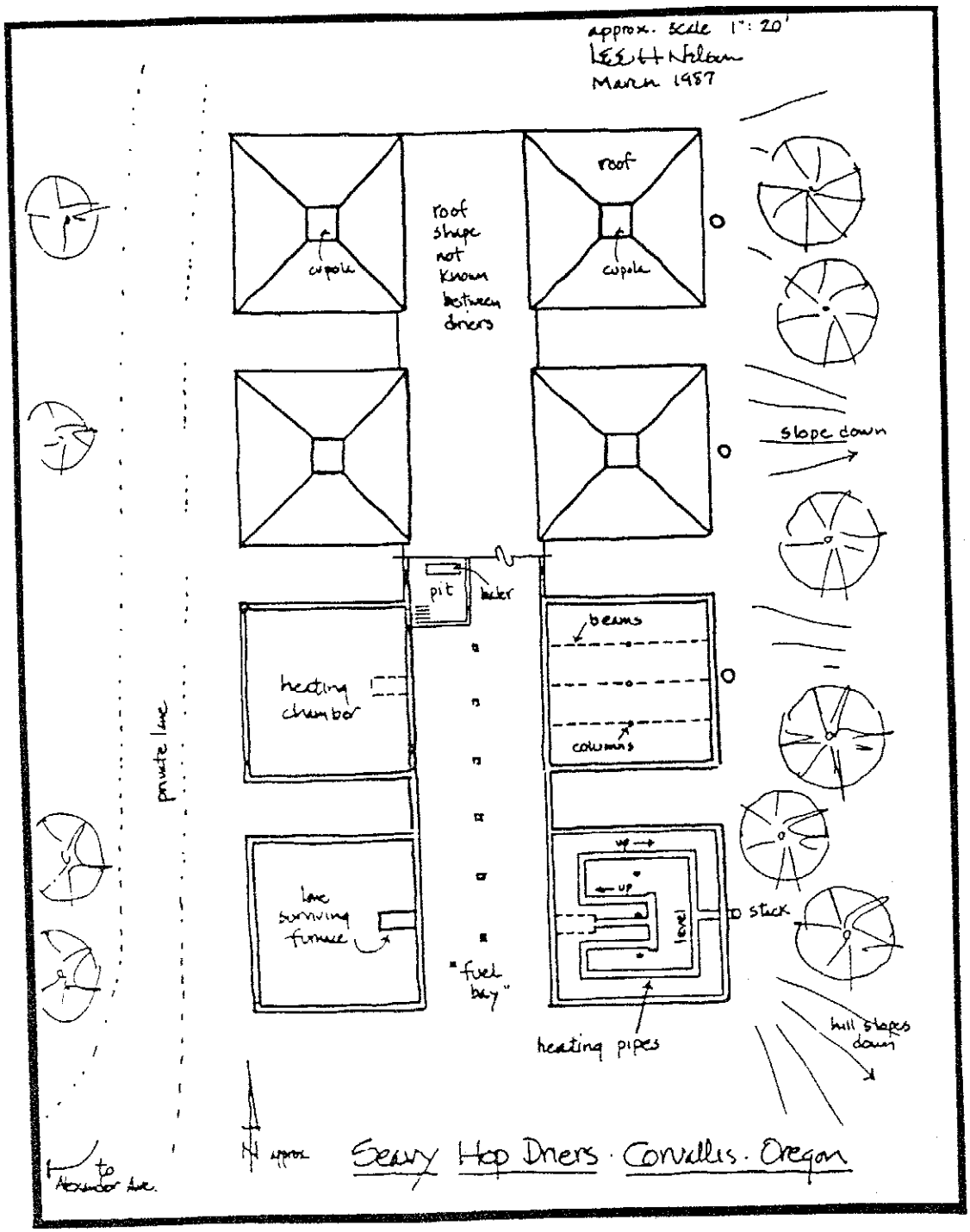

Figure 1. James W. Seavey Hop Driers Site Plan

Access to the individual driers is through a wagon door located on the west end. The lower story of the fuel bay is open on each end, while doors on the upper level provided exterior loading of the hops. Originally an elevator-track system carried the hops from the ground up to the second level for distribution among the driers; however, the tramway mechanism no longer exists.

The exterior cladding of the driers is drop siding, five inches to the weather with shiplap joints. The horizontal siding is double nailed at each stud, the reason for which is not known. All of the eight hop driers are built on concrete piers. The average pier measures about 12" x 24" in plan, with larger footings below grade. The height of the concrete piers varies considerably because of the different grade levels, especially on the east side where the edge of the stream bank drops off suddenly.

The structural studs of the hop driers measure 1-5/8" x 5-1/2" and are on 16" centers. The studs rest on double 2" x 6" sills. The interior width of one of the driers is approximately 30'-8" and the length is 31'-6". All eight driers appear to be of the same size.

The heating chamber on the first level has a dirt floor and is lined on the inside with circular-sawn plaster lath nailed to the studs. At an unknown date most of the plaster was removed from the lath and replaced with sheet rock. Much of the sheet rock is also missing.

There is only one surviving furnace, which is of cast iron and carries the inscription on the door, "Holt Equipment Independence, Oregon." The furnace is 28" wide and 34" high, not including the clean-out door underneath. The length of the stove is 76" and made into four sections, each being about 18" long with wide welded joints. There is a doorway beside each furnace, that provides interior access from the fuel bay to the heating chamber of each drier. The furnaces burned slab wood, which was loaded from the fuel bay (Manthe 1985).

There is a circular cast-iron exhaust sleeve at the rear of the remaining furnace about 18" in diameter, to which heavy-gauge sheet metal pipes are attached. The ducting originally encircled the heating chamber in an upward spiral until it connected with an exterior chimney. The pipes are 18" in diameter and composed of 30" long segments riveted together longitudinally. The sections are secured to each other with heavy-gauge clips and bailing wire. Many of the furnace stacks and chimneys today are missing or collapsed. The most complete set of ductwork is located in the southeast drier.

The three primary beams that support the slatted drying floor on the second level consist of three laminations of 2" x 16", while the center beam is a solid member approximately 2" x 16" in size and about 30' long. The three pipe columns which support the drying floor beams are of cast iron and are 2-3/4" in diameter and are about 25' in height.

The fuel bay between the paired driers is about 22'-6" wide and rests on two continuous rows of concrete retaining walls, which also support the inner walls of the driers. There is a line of 6" x 6" wooden posts extending down the middle of the fuel bay, which has a dirt floor. The ceiling framing over the bay consists of 2" x 6" joists on 18" centers. All of the structural members within this space is constructed of Douglas fir. There is a concrete pit at midpoint of the bay, which was used for the wooden baling chute that extended up to the second floor. The inside measurements of the chute are 18" x 54", and there is a heavy trap door at the bottom. The baler is missing.

The hop driers were used as kilns until the early 1950s, when Seavey converted the farmland to bean cultivation. The barn has since been used to store beans, lily bulbs and hay; as a stable for horses; as a garage for farm machinery and automobiles; and as a workshop (Kendall 1989). Although in poor physical condition, primarily due to a lack of maintenance, the Seavey Driers have not been altered over time with changing functions.

Although the source of the design of the driers is not known, the buildings bear a striking resemblance to early driers that operated in Puyallup, Washington, in the 1880s (Figures 2 and 3). In 1883 Ezra Meeker, a Puyallup hop grower, published a detailed treatise on the cultivation and processing of hops. There is enough similarity between the Seavey and Meeker hop driers to suggest that Meeker's publication was a major influence in the construction and operation of the Seavey buildings.

Technology

The form and function of the Seavey Driers are derived from English roast houses that date to the 16th century (Brunskill 1982:144-145, 163). Hop culture was introduced into Virginia from Britain in 1648, but it was not until the mid-1880s, when the industry had shifted to New England, that hop driers were developed for use in the United States. By the end of the 19th century, the hop industry was established in the Pacific Northwest and a distinctive hop house form appeared in the 1880s (Holmes 1947:4; Hubka 1984; Lawrence 1883:62-114; Meeker 1883:26, 53; Newman 1983:71).

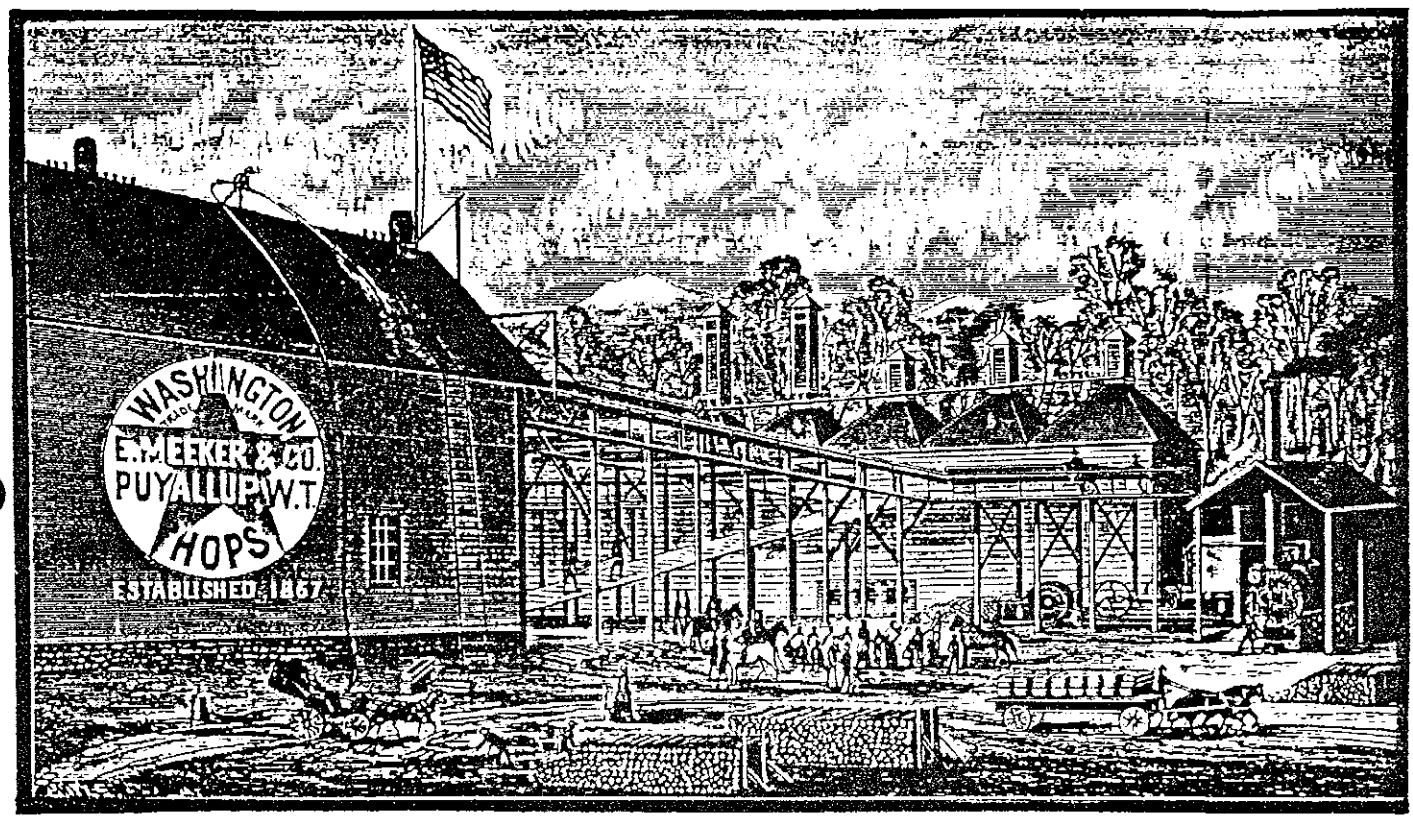

Figure 2. Meeker Hop Driers, Puyallup, Washington (Meeker 1883).

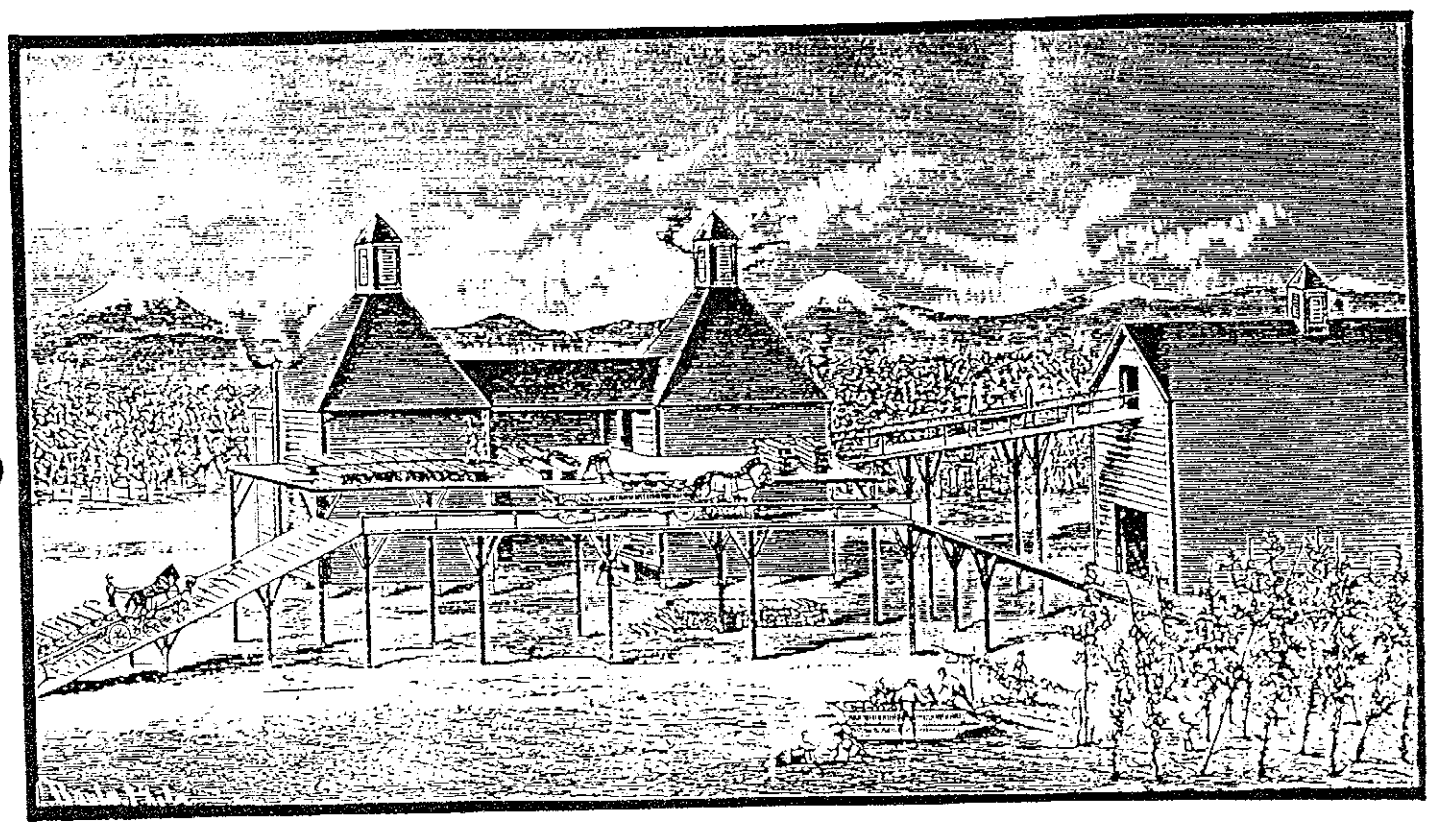

Figure 3. Puyallup, Washington Hop Driers (Meeker 1883).

The historic form of the three-part hop house included a ground level heating chamber, the slatted drying floor above, and a mechanism for controlling the upward movement of heated air such as a flue, cowl or cupola. Typically, hop houses had steeply pitched roofs. Space for curing, baling and storing the dried hops was also an integral part of the kiln, being built as a lean-to addition or connecting corridor between the driers. The free-standing driers were constructed either as single buildings, in pairs, or as a complex of several paired driers (Brunskill 1982:144-145, 163; Hubka 1984; Lawrence 1883:62-114; Meeker 1883:26,53).

The drying process involved spreading the hops evenly in layers across the drying floor, fifteen to thirty-six inches in depth. The floor was slatted and covered with loosely woven material to allow the free passage of heated air from the heating chamber below. Early kilns used open hearths and fireplaces to bring the temperature of the drying room up to about 180 degrees. Rooftop louvers and cowls facilitated natural draft air movement, pulling the heat upward through the hops. By the late 19th century cast iron furnaces provided the heat, which was evenly distributed around the drier through ductwork connected to the furnace. Natural draft drying was still employed using rooftop cupolas and a venting system along the lower walls of the drier. Suction fans for forced draft drying were introduced from Europe in the 1880s (Deardorf 1989; Holmes 1947:26-29; Meeker 1883:25-33).

Drying times varied according to the temperature of the heating chamber and type of draft employed. The local climate and moisture content of the outside air were also factors. Usually 14 to 20 hours was required to dry a load of hops. It was recommended that the hops be left in place during the drying process. Pots of burning sulphur were hung inside the kilns to accelerate the drying and bleaching of the hops. Bleaching acted as a preservative by ridding the hops of disease and blemishes (Deardorf 1989; Holmes 1947:26-29; Meeker 1883:25-33).

After drying, the hops were removed to a cooling area near the drying floor, where they were cured for about two weeks. Curing allowed the hops to sweat and regain some moisture before they were baled. In the 1880s the hop grower did not bale his crop immediately after curing; rather the hops were warehoused in bulk form until ready for market and baling (Deardorf 1989; Holmes 1947:26-29; Meeker 1883:25-33).

The press baler was normally located below the curing room and was connected to that room by a hopper, into which the cured the hops were shoveled. A power plunger repeatedly compressed the hops into the baler, which had removable sides. Bound in

hop-sacking or burlap with hand-sewn corners, a finished bale weighed between 180 to 210 pounds. The bales were stored in warehouses until they were taken to market (Deardorf 1989; Holmer 1947-26-29; Meeker 1883:25-33).

By 1930 the hop industry had steadily mechanized its production methods. Tractors replaced horse-drawn equipment and suction fans were commonly found in the cupolas of the driers for more efficient forced draft heating (Pacific Hop Grower 1934:3-7). In 1939 a mechanical hop picker was introduced by inventor, Florian Dauenhauer of California. Other improvements followed, which included a picking machine for stripping the hops from the vine and screening out leaves and other debris. Eventually the old cast-iron furnaces were replaced by huge gas-fired heating devices located on the side of the kiln.

The process of picking and drying hops is now fully automated. Most of the older driers in Oregon, with their distinctive cupolas, are gone or have been severely altered to serve new functions. Modern kilns are simple large metal industrial buildings with no distinguishing characteristics. Despite modernization, the overall organization and operating principles of the kiln and the drying process has changed little over time.

Seavey History

James W. Seavey was one of Oregon's most successful and prominent hop growers during the first half of the 20th century. In addition to owning and operating four large hop yards in the Willamette Valley, Seavey marketed hops world-wide out of an office in Portland, Oregon, from 1905 to 1955. His field operations led the industry by adopting the most current innovations as soon as they were introduced into the state's hop culture. He was considered an authority among Oregon hop growers on hop production and marketing (Deardorf 1989; Gaston 1912:1091-1092; Polk's Portland City Directory 1905-1055).

Seavey was descended from seven generations of Maine fishermen, whose roots originated in southwestern England. His father, Alexander, arrived in Oregon in 1850, where he worked as a merchant before establishing a 160-acre stock farm in 1855 on the McKenzie River near Springfield in Lane County. The ranch prospered and the elder Seavey purchased additional acreage on which he began raising 25 acres of hops in 1883 (Chapman 1903:909; Gaston 1912:1901-1092; Kienzle 1989).

James W. Seavey was born in 1873, the sixth of eight children reared by Alexander and his wife, Sarah Ann Blatchly. He grew to manhood on the McKenzie River ranch and was educated

at a small local college. He got his start in the hop business working under the tutelage of his father. Seavey and two of his brothers, John and Jesse, divided up their father's extensive land holdings in Lane County when the patriarch died in 1908. The brothers continued to grow hops, John on acreage near Goshen and Jesse in Corvallis, Benton County. James retained the McKenzie River ranch, where his father's original 25 acres of hops had grown to 150 acres. In addition to the ranch, Seavey established hop yards near Oregon City on the Clackamas River and in Corvallis along the Willamette River. He purchased the hop yard on which the hop driers now stand in 1912 from D. B. Taylor. Seavey also operated a 185 acre farm near Springfield, a filbert orchard and owned 720 acres of timberland. In 1912 he had 550 acres planted in hops, which produced 3000 bales annually (Benton County Deed Records 1912; Chapman 1903:909; Daily Gazette-Times 1910, 1911; Deardorf 1989; Gaston 1912:1091-1092; Kendall 1989: Kienzle 1989).

In 1905 he opened his own office in Portland with partner, J. J. Metzler, and began the lucrative enterprise of buying and selling hops. In 1912 Seavey's partner had changed to Frank S. Johnson. The business sold hops on both domestic and international markets under the name of the J. W. Seavey Hop Company. By 1920 Seavey had bought out his partner and retained the Portland brokerage alone (Deardorf 1989; Polk's Portland City Directory 1905, 1911, 1920).

Seavey married twice and fathered two children by his first wife, Elizabeth Kelly. One of the children was a son, Alex, who as an adult joined his father in the hop business. Alex is credited with introducing the use of forced-draft fans and mechanical hop pickers into the Seavey hop operation during the 1930s. Seavey's brother, Jesse, was also an inventor of many labor-saving devices used in the family hop operations; he built the balers for the drier complexes (Deardorf 1989; Gaston 1912:1091-1092).

James W. Seavey died in January of 1961 (Eugene Register-Guard 1961). He operated the Corvallis hop yard until about 1952, when an infestation of red mite caused him to convert the farm to bean cultivation. He sold the building complex and land in 1955 to Mrs. E. J. Kendall and her husband (Kendall 1989).

Historical Context

The first hops grown in the Pacific Northwest were cultivated in the Willamette Valley for private use by pioneer Euro-American farmers of the Oregon frontier. The territory's agricultural census of 1850 recorded eight pounds of hops produced in 1849. Over the next ten years Oregon hop production

increased, with much of the crop sold to two early breweries in the Portland area (Nelson 1963:267).

The California hop industry got its start in 1855, using transplanted root cuttings from Vermont. Nearly all of the hops grown on the Pacific Coast after 1857 were descended from California plantings; although some growers imported their root stock from elsewhere. Washington State did not initiate its hop culture until 1866. Of the three Pacific Coast states, California was the leading producer of the crop until about 1889. Oregon became the top producer of hops in 1895 and maintained that position until 1915 and during the 1920s (Nelson 1963:269; Sulerud 1931:18-19).

The first attempt to raise hops on a large-scale basis in Oregon was made in 1869 by emigrant, Adam Wiesner, of Buena Vista in Polk County. Using root stock from Wisconsin, he planted five acres of the crop along the Willamette River and constructed the first recorded hop drier in the state. Wiesner's venture failed; however, he sold root cuttings to George Leasure, who established the first successful commercial hop yard in 1869 near Eugene City of Lane County (Nelson 1963:271).

By 1870 the lucrative commercial value of hops for the manufacture of beer was realized by an ever-growing number of Oregon farmers. Forty-two growers were cultivating 200 acres of hops in 1880; small acreages were involved, with the largest yard totaling ten acres. Oregon-grown hops were sold on both domestic and foreign markets, but it was the European market that dictated the price paid for dried hops (Becke 1917:1).

Beginning in 1888, the price of hops soared and demand for the crop increased, especially in the European market. The Oregon hop industry responded by placing 15,433 acres in hop production, which yielded 3,614 pounds at the end of 1889. Ten years later the amount produced had quadrupled as growth in population and beer consumption fed the demand for Oregon hops in Europe and the United States (Becke 1917:1-2; Sulerud 1931:18).

Great fluctuations in the price of hops, controlled by European production, made the industry uncertain. The hops market in Europe was always changing, depending upon the success or failure of its annual crop. Bidding between American buyers and those in Europe were highly competitive, adding to the instability of the market. As the prices rose and fell from year to year, the growers either reaped a handsome profit in a short time or lost money and were forced out of the business altogether. In Oregon there was never a time that the hops market remained high enough to insure a profit to the growers for more than three consecutive years (Becke 1917:6-7).

With the exception of limited acreage in Jackson and Josephine Counties, Oregon's early hop culture was confined to the Willamette Valley, with the counties of Marion and Polk leading in the total acreage devoted to hops (Sulerud 1931:23). The size of the individual hop yard varied, but some were as large as 100 to 200 acres, and each yard had one or more kilns. The acreage devoted to hop production changed with the market prices.

In 1900 Oregon growers began to spray their crops as a preventative measure against hop lice and mold. Spraying added to production costs and this, combined with low prices for their crop, drove many small hop operations out of business. Despite a fluctuating European market, the remaining growers held on until the price improved. Between 1902 and 1914, the price paid for Oregon hops was again profitable, increasing steadily over the years, as did the number of acres devoted to hop culture. Farmers reentered the business, with the high market prices as an incentive (Becke 1917:2; Holmes 1947:6; Sulerud 1931:18).

By 1895 Oregon became the leading state in hop production in the Pacific Northwest, bypassing California and Washington. In 1913 the state produced 47 percent of the hops marketed in the United States and 98 percent of this was for export. Oregon's position as a leader in the hop industry was maintained until 1915 (Becke 1917:1; Sulerud 1931:19).

In 1914 the Oregon Hop Growers Association was organized to give the growers more control over the profit gained from their crop. Three aims were outlined: (1) to buy at wholesale prices all supplies for raising and marketing hops, (2) to distribute the supplies to all members at the lowest cost and (3) to pool the crops to sell to consumers rather that through a buyer (Becke 1917:4). The Association published a newspaper for a time and remains an effective organization today.

Between 1914 and 1915 the advent of prohibition in America and later World War I in Europe caused the demand for hops to fall sharply, as prices declined to the point where hop culture was unprofitable. Beer manufacture and consumption was greatly reduced, while England placed an embargo on American hops in 1916. Production in Oregon dropped to 4,788 pounds by 1919, with only 5,629 acres in hops. California again took the lead as the major hop producing state (Becke 1917:15-18; Sulerud 1931:18,20).

Oregon hop growers made a rapid recovery during the years following the war, stimulated by renewed foreign trade, and later, the repeal of prohibition laws in 1933. Between 1920 and 1930 Oregon produced half of the hops grown in the United States. Four main varieties of hops were cultivated--English or Late

Cluster, Early Cluster, Friggies and Canadian Red Vine (Nelson 1963:269; Sulerud 1931:18, 28). During the 1930s a disease called the "downey mildew" destroyed much of Oregon's hop industry, such that the region never regained its former production level.

Hop culture is still an agricultural pursuit in the Pacific Northwest, but the center of the industry is now located in the Yakima Valley of Washington. According to the Oregon Hop Commission (1982), Polk and Marion Counties in the Willamette Valley are the primary hop producers in Oregon, which grows 25 percent of the world's production. New varieties of brewing-quality hops have been introduced which include Willamette, Cascade, Bullions, Brewers Gold, Ghalena, Eroica and Nugget. Since the mid-1940s hop production has stabilized and now adds some 26 million dollars annually to the state's economy.

REFERENCES CITED

Becke, Karl G. "History and Present Status of the Oregon Hop Industry." Senior Thesis, University of Oregon Archives, 1917.

Benton County Deed Records, 1912. Book 56:282. Office of the County Clerk, Benton County Courthouse, Corvallis, Oregon.

Brunskill, R. W. Traditional Farm Buildings of Britain. London: Victor Gollancz Ltd. in association with Peter Crawley, 1982.

Daily Gazette-Times, 25 February 1910.

Daily Gazette-Times, 22 March 1911.

Deardorf, Shirley Seavey. Interview with author, 6 September 1989.

Eugene Register-Guard, 10 January 1961. Obituary of James W. Seavey.

Gaston, Joseph. "James W. Seavey." In The Centennial History of Oregon, 1811-1911, Biographical, Vol. 4, 1091-92. Chicago: S.J. Clarke Publishing Co., 1912.

Holmes, Frank Jr. "History, Methods and Costs of Production and Financing of Pacific Coast Hops." MA Thesis, University of Oregon, 1947.

Hubka, Thomas C. Big House, Little House, Back House, Barn: The Connected Farm Buildings of New England. Hanover, MA: University Press of New England, 1984.

Kendall, E. J. Interview with author, 6 September 1989.

Kienzle, Hazel Seavey. Interview with author, 30 August 1989.

Lawrence, W. A. "Hop culture in the state of New York." In Hop Culture in the United States. ed. E. Meeker, 62-114. Puyallup, Washington Territory: E. Meeker & Co., 1883.

Manthe, Kendall Interview with author, 8 December 1985.

Meeker, Ezra, ed. Hop Culture in the United States. Puyallup, Washington Territory: E. Meeker & Co., 1883.

Nelson, Herbert B. "The vanishing hop-driers of the Willamette Valley." Oregon Historical Quarterly. 65(1963): 267-271.

Newman, Doug. "History of Hops Growing in Lane County." Lane County Historian. 28(1983): 70-76.

Oregon Hop Commission. The Oregon Hop Industry. Mt. Angel, Oregon: Oregon Hop Commission, 1982.

Oregon Hop Growers. Pacific Hop Growers. Mt. Angel: Yakima Valley Hop Growers Association, and United Hop Growers of California, 1934.

Polk's Portland City Directory. Portland, OR: R. L. Polk and Company, 1905-1955.

Portrait and Biographical Record of the Willamette Valley, Oregon. Chicago: Chapman Publishing Co., 1903.

Sulerud, G. L. "An economic study of the hop industry in Oregon." In Agricultural Experiment Station Bulletin 288, 11-77. Corvallis: Oregon State Agricultural College, 1931.